1.243 10 years of IASI CO retrievals.

Presenting Author:
  Maya GEORGE, LATMOS/IPSL, UPMC Sorbonne Universités, UVSQ, CNRS, Paris, France, maya.george@latmos.ipsl.fr

Co-Authors:
  Cathy CLERBAUX, LATMOS/IPSL, UPMC Sorbonne Universités, UVSQ, CNRS, Paris, France; Spectroscopie de l'Atmosphère, Service de Chimie Quantique et Photophysique, Université Libre de Bruxelles, Brussels, Belgium
  Juliette HADJI-LAZARO, LATMOS/IPSL, UPMC Sorbonne Universités, UVSQ, CNRS, Paris, France
  Pierre-François COHEUR, Spectroscopie de l'Atmosphère, Service de Chimie Quantique et Photophysique, Université Libre de Bruxelles, Brussels, Belgium
  Daniel HURTMANS, Spectroscopie de l'Atmosphère, Service de Chimie Quantique et Photophysique, Université Libre de Bruxelles, Brussels, Belgium
  David EDWARDS, Atmospheric Chemistry Observations and Modeling, National Center for Atmospheric Research, Boulder, CO, USA
  Helen WORDEN, Atmospheric Chemistry Observations and Modeling, National Center for Atmospheric Research, Boulder, CO, USA
  Merritt DEETER, Atmospheric Chemistry Observations and Modeling, National Center for Atmospheric Research, Boulder, CO, USA
  Debbie MAO, Atmospheric Chemistry Observations and Modeling, National Center for Atmospheric Research, Boulder, CO, USA
  Thomas AUGUST, EUMETSAT, Darmstadt, Germany
  Marc CRAPEAU, EUMETSAT, Darmstadt, Germany

Abstract:

Carbon monoxide (CO) is an important trace gas for understanding air quality and atmospheric composition. It is a good tracer of pollution plumes and atmospheric dynamics.
With two IASI instruments flying on the Metop-A and Metop-B satellites, any location on Earth is now observed at least four times per day in the infrared spectral range. All cloud free observations are analysed in near real time mode.
IASI CO concentrations are retrieved from the radiance data using the Fast Operational Retrievals on Layers for IASI (FORLI) algorithm, based on the Optimal Estimation theory. The operational production is performed at EUMETSAT and the products are distributed in NRT via EUMETCast under the AC SAF auspices.
We present here an analysis of 10 years of global distributions of CO. Improvements of the last FORLI-CO version (v20151001) will be shown. Updates in the auxiliary parameters (temperature, cloud information) have an impact on the retrieved product. Comparison with MOPITT CO data (v7T, record starting in 2000) was performed. IASI and MOPITT data are jointly assimilated in the Copernicus Atmospheric Monitoring Service (CAMS) to generate CO pollution forecasts. Harmonizing IASI and MOPITT CO products is

challenging: a method using corrective factors (developed in the framework of the QA4ECV project) will be presented.